AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

Claim 1. (Original) A device for optical spectrum analysis by Brillouin Scattering, comprising an optical source (1), an optical fiber link (2), an optical circulator (4) to access said link (2) by one of its ends, a second optical access (6), a detection system (3) and a control system (7), where said fiber link (2) is susceptible to receiving by means of said optical circulator (4) an optical probe signal (A) coming from said optical source (1) and, by means of said second access (6), an optical test signal (B), whose spectrum (12) is to be measured, coming from an external source (10), the fiber link (2) providing a material means suitable for a Brillouin effect interaction between the probe signal (A) and the test signal (B), obtaining by said optical circulator (4) an optical output signal (C), which is carried to said detection system (3), and an electric signal derived from said detection is applied to said control system (7) providing a spectral component measurement of the test signal (B) according to the wavelength of the probe signal (A) and obtaining the spectrum (12) of the test signal by means of said control system (7), characterized in that the input of the test signal (B) in the optical fiber link is carried out through the optical access (6) and at the end opposite to the input of the probe signal (A), said access having an optical isolator (6) inserted so as to prevent any optical signal output which could influence the external source (10), and in that said device comprises a polarization controller (5)

located between said optical circulator (4) and said fiber link (2) so as to prevent the loss in efficiency caused by the different polarizations of the optical probe signal (A) and optical test signal (B).

Claim 2. (Original) A device according to claim 1, characterized in that said optical source is of the high coherence, narrowband, tunable, external cavity semiconductor laser type.

Claim 3. (Original) A device according to the previous claims, characterized in that said device incorporates an optical amplifier (8) located at the outlet of said tunable optical source (1) in order to increase the applied intensity of the probe signal (A) and thus the sensitivity level of the measurement.

Claim 4. (Currently Amended) A device according to ~~the previous claims~~claim 1, characterized in that said device incorporates at least a modulator (9, 14) synchronously working with the detection system (3), such that said spectrometry device reaches a high sensitivity and a broad dynamic range in the measurement.

Claim 5. (Original) A device according to claim 4, characterized in that it incorporates a first modulator (9) located between the polarization control (5) and the fiber link (2), such that the modulation is carried out on the probe signal (A).

Claim 6. (Original) A device according to claim 4, characterized in that it incorporates a second modulator (14) located between the fiber link (2) and the isolator (6), such that the modulation is carried out on the test signal (B).

Claim 7. (Original) A device according to claim 4, characterized in that it incorporates a first modulator (9)

located between the polarization control (5) and the fiber link (2), and a second modulator (14) located between the fiber link (2) and the isolator (6).

Claim 8. (Currently Amended) A device according to ~~the previous claims~~claim 1, characterized in that the modulators (9, 14) can carry out an amplitude or polarization modulation.

Claim 9. (Original) A device according to claim 8, characterized in that the first modulator carries out a polarization modulation.

Claim 10. (Currently Amended) A device according to ~~the previous claims~~claim 1, characterized in that said spectral resolution is limited by the Stimulated Brillouin effect spectral width.

Claim 11. (Original) A device according to claim 10, characterized in that said spectral resolution reaches a minimum value of about 0.05 pm for the near infrared area, that is, $\lambda \sim 1.5\ \mu m$.

Claim 12. (Currently Amended) A device according to ~~the previous claims~~claim 1, characterized in that said sensitivity reaches a value of about 1nW/pm for response times in the detection chain of about 1 ms.

Claim 13. (Currently Amended) A device according to ~~the previous claims~~claim 1, characterized in that the dynamic range reaches a value of about 80 dB, system sensitivity being adjusted by means of the total gain level in the Brillouin Scattering Amplification.

Claim 14. (Currently Amended) A device according to ~~the previous claims~~claim 1, characterized in that the optical fiber (2) is a single-mode fiber for the measurement or working wavelength range.

Claim 15. (Currently Amended) A device according to ~~the previous claims~~claim 1, characterized in that the polarization controller (5) can exercise the functions of first modulator (9) modulating the probe signal (A).

Claim 16. (Original) A device according to claim 1, characterized in that the detection system is low frequency.

Claim 17. (Original) A process for optical signal spectroscopic measurement for the selective optical amplification of signals by Brillouin Scatter, including:

a. the introduction of an optical probe signal (A) coming from an optical tunable source (1) into one end of an optical fiber (2) link after passing through an optical circulator (4),

b. introducing an optical test signal (B) to be analyzed and object of the measurement, coming from an external source (10), into the optical fiber link (2),

c. interacting the probe signal (A) and the test signal (B) to generate an output signal (C),

d. detecting the output signal (C) by means of direct light detection system (3), and

e. analyzing and collecting data by means of a control system (7) connected to the tunable optical source (1) and the detection system (3),

characterized in that for the interaction between the probe signal (A) and the test signal (B), the following steps occur:

a. introducing the optical test signal (B), after passing through the optical isolator (6), into the optical fiber (2) through the end opposite to that of the introduction of the probe signal (A),

b. optimizing the polarization alignment of the probe signal (A) with that of the test signal (B), by means of a polarization controller (5) located between the optical circulator (4) and the input of the probe signal (A) in the optical fiber link (2),

c. interacting the probe signal (A) and the test signal (B) in the optical fiber link (2), generating an output signal (C), and

d. separating the probe signal (A) and output signal (C) by means of an optical circulator (4) located in the input end of the probe signal (A) in the optical fiber link (2).

Claim 18. (Original) A measurement process according to claim 17, characterized in that it comprises a probe signal (A) amplification step by means of an optical amplifier (8) after its output from the tunable optical source (1) and before the probe signal (A) input in the optical circulator (4).

Claim 19. (Original) A measurement process according to claims 17 and 18, characterized in that it comprises a probe signal (A) modulation step by means of a first modulator (9) located between the polarization control (5) and the optical fiber link (2) and synchronously working with the detection system (3).

Claim 20. (Original) A measurement process according to claims 17 and 18, characterized in that it comprises a test signal (B) modulation step by means of a second modulator (14) located between the optical isolator (6) and the optical fiber link (2) synchronously working with the detection system (3).

Claim 21. (Original) A measurement process according to claims 17 and 18, characterized in that it comprises a probe

signal (A) modulation step by means of a first modulator (9) located between the polarization control (5) and the optical fiber link (2) and synchronously working with the detection system (3), and a test signal (B) modulation step by means of a second modulator (14) located between the optical isolator (6) and the optical fiber link and synchronously working with the detection system (3).